इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 7953 (1976): Horn Rings for Automobiles [TED 11: Automotive Electrical Equipment]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

Indian Standard

SPECIFICATION FOR
HORN RINGS FOR AUTOMOBILES

UDC 629·113·018·2:654·922·3:621·887

© *Copyright* 1976

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

May 1976

AMENDMENT NO.1 DECEMBER 1985

TO

IS:7953-1976 SPECIFICATION FOR HORN RINGS FOR AUTOMOBILES

(*Page 6, clause 6.5*) - Substitute the following for the existing clause:

'6.5 Endurance Test - The horn ring shall be suitably mounted and operated at two diametrically opposite points of the ring, alternately, for 100 000 cycles without failure, with an inductive load of 120 percent of the rated current through the horn switch contacts. Each cycle shall consist of sequencing through each position with travel time and dwell time as given below. The resistance in the system shall be 0.05 ohm for rated voltage of 6 V, 0.10 ohm for rated voltage of 12 V and 0.20 ohm for rated voltage of 24 V, the resistance at terminals and contacts being included.

Travel time (time from one position to the other	- 0.1 to 0.5 seconds
Dwell time (time in each position)	- 0.1 to 2.0 seconds.

NOTE - The travel and dwell periods are for guidance only. The actual value which depend upon the application shall be subject to agreement between the manufacturer and the user.

6.5.1 The horn ring after being subjected to this test shall be allowed to come down to room temperature and subjected to voltage drop test (see 6.9). The voltage drop at rated current (with normal force of 20 N applied to the ring at any point) shall not exceed 200 mV.

(ETDC 14)

Reprography Unit, ISI, New Delhi, India

IS : 7953 - 1976

Indian Standard

SPECIFICATION FOR HORN RINGS FOR AUTOMOBILES

Automobile Electrical Equipment Sectional Committee, ETDC 14

Chairman	*Representing*
Shri B. S. Bhagowalia*	Tata Engineering & Locomotive Co Ltd, Jamshedpur
Members	
Shri A. R. Munshi (*Alternate* to Shri B. S Bhagowalia)	
Shri Y M Balakrishna	Motor Industries Co Ltd, Bangalore
Shri M. S. S. Jois (*Alternate*)	
Shri J. V. Bapuraj	The Development Commissioner, Small Scale Industries, New Delhi
Shri R. K Arora (*Alternate*)	
Shri R. Bhandari	J M. A. Industries Ltd, New Delhi
Shri Pattabhiraman (*Alternate*)	
Shri S. C Bhar	Hindustan Motors Ltd, Hooghly
Shri R. N. Dhar	National Physical Laboratory (CSIR), New Delhi
Shri N M Jobanputra	Mahindra & Mahindra Ltd, Bombay
Shri C. V Karthik Narayanan	Standard Motor Products of India Ltd, Madras
Shri P. B Kerkar	Bombay Electric Supply & Transport Undertaking, Bombay
Lt-Col R N Mehrotra	Ministry of Defence (VRDE)
Shri K Thayagarajulu (*Alternate*)	
Shri S. K. Mukherjee	National Test House, Calcutta
Shri D N Upadhyay (*Alternate*)	
Shri Vepa A Murari	Lucas-TVS Ltd, Madras
Shri C. V K Murthy Rao	Association of Indian Automobile Manufacturers, Bombay
Shri K R. Anandakumar Nair	Best & Co Private Limited, Madras
Shri N Balakrishnan (*Alternate*)	
Shri G. C. Patel	Globe Auto Electricals Ltd, Bombay
Shri S. S Date (*Alternate*)	
Shri K S Ramaswamy	Ashok Leyland Ltd, Madras
Shri N. P. Thampi (*Alternate*)	

---

*Shri B S. Bhagowalia was the Chairman for the meeting in which this standard was finalized.

(*Continued on page* 2)

© *Copyright* 1976
INDIAN STANDARDS INSTITUTION
This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(*Continued from page* 1)

Members	*Representing*
Shri G. S Sethi	Prestolite of India Ltd, New Delhi
Shri S N Taneja (*Alternate*)	
Shri K Shankaranaraynan	Directorate General of Technical Development, New Delhi
Shri Sushil Kumar (*Alternate*)	
Lt-Col K K. Sinha	Ministry of Defence (DGI)
Shri H N. Nagarajan (*Alternate*)	
Shri P. R. Srinivasan	International Instruments Pvt Ltd, Bangalore
Dr Pulak De (*Alternate*)	
Shri Ivor Stevens	Maharashtra State Road Transport Corporation, Bombay
Shri V. P. Tilak	Premier Automobiles Ltd, Bombay
Shri T. S Pillay (*Alternate*)	
Shri N. Srinivasan, Director (Elec tech)	Director General, ISI (*Ex-officio Member*)

Secretary

Shri T. Rajaraman
Deputy Director (Elec tech), ISI

Indian Standard

SPECIFICATION FOR HORN RINGS FOR AUTOMOBILES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 January 1976, after the draft finalized by the Automobile Electrical Equipment Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 With a view to bringing about uniformity in the manufacture and use of automobile electrical equipment, work on formulation of standards for various automobile electrical equipment has been started. This standard relates to horn rings intended to be used with electric horns covered by IS: 1884-1970*.

0.3 Horn rings are a special type of horn switches in the form of a circular ring (concentric with the steering wheel) used in certain types of automobiles. This standard is intended to cover such horn rings.

0.4 This Indian Standard is one of the series of standards for horns and other accessories for automobiles The other standards in this series are:

IS · 1884-1970	Automobile electric horns (*first revision*)
IS:2077-1962	Automobile electric horn relays
IS:4050-1967	Methods of tests for horn switches for automobiles

0.5 Considering the importance of achieving interchangeability of similar horn rings, this specification lays down fixing dimensions also, in addition to the performance requirements, methods of tests, etc.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers horn control switches of 2, 5 and 10A rating in the form of a circular ring (concentric with the steering wheel) and deals with their electrical and mechanical requirements and methods of tests.

---

*Specification for automobile electric horns (*first revision*)

†Rules for rounding off numerical values (*revised*).

NOTE — When a flasher switch is combined with the horn ring to make horn and flasher control assembly, the flasher switch portion shall conform to IS . 4815-1968*.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Type Tests — Tests carried out to prove conformity with the specification. These are intended to prove the general qualities and design of a given type of horn rings.

2.2 Routine Tests — Tests carried out on each horn ring to check requirements which are likely to vary during production.

2.3 Acceptance Tests — Tests carried out on samples taken from a lot for the purpose of acceptance of the lot

3. DESIGN AND CONSTRUCTION

3.1 The contacts of the horn ring shall be designed to carry the rated current of 2, 5 and 10A.

3.2 The materials used in the horn ring shall be of such quality, design and construction that will provide adequate protection in normal uses, against mechanical and electrical failures, and shall withstand the effects of changing weather conditions, water or excessive dampness, corrosion, high temperature or any other deleterious influence to which they will be exposed under conditions of their normal use.

3.3 The dimensions shall be as declared by the manufacturer

3 4 The horn ring shall be sufficiently rigid to withstand shocks during fitting into the steering column tube.

4. WORKMANSHIP AND FINISH

4.1 All fabrication and construction shall be carried out in thoroughly workmanlike fashion in accordance with generally accepted principles of sound and safe practice. The horn ring shall have neat finish and appearance.

5. MARKING

5.1 Each horn ring shall be distinctly and indelibly marked with the following:

a) Name and/or trade-mark of the manufacturer;

b) Rated current; and

c) Country of manufacture.

---

*Specification for self cancelling direction indicator switches for automobiles.

5.1.1 Horn rings may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution

6. TESTS

6.0 Classification of Tests

6.0.1 *Type Tests* — The following shall constitute type tests:

a) Visual examination (*see* **6.1**);
b) Performance test (*see* **6.2**);
c) Flash Test (*see* **6.3**);
d) Vibration test (*see* **6.4**);
e) Endurance test (*see* **6.5**);
f) Test for water spray (*see* **6.6**);
g) Damp heat (cycling test) (*see* **6.7**);
h) Test for salt spray (*see* **6.8**);
j) Voltage drop test (*see* **6.9**); and
k) Heat (cycling) test (*see* **6.10**)

6.0.2 *Criteria for Approval* — Nine samples shall be submitted for testing together with the relevant data. The testing authority shall issue a type approval certificate if the horn rings are found to comply with the requirements of test given in **6.0.1**.

6.0.3 After visual examination all the samples shall be subjected to performance test (**6.2**) and flash test (**6.3**). They shall then be subjected to the tests in the following manner:

Endurance test	3 samples
Voltage drop test	1 sample
Vibration test	1 sample
Test for water spray	1 sample
Damp heat (cycling) test	1 sample
Test for salt spray	1 sample
Heat (cycling) test	1 sample

6.0.4 In case of failure of one or more type tests, the testing authority may call for fresh samples not exceeding twice the number of original samples and subject them to the test(s) in which failure occurred. If, in repeated test(s) no failure occurs, the tests may be considered to have been satisfied.

6.0.5 *Acceptance Tests* — The acceptance tests shall constitute:

a) Visual examination (*see* **6.1**),

b) Performance test (*see* **6.2**), and

c) Endurance test (*see* **6.5**).

NOTE 1 — The number of operations for endurance test when conducted as acceptance test would be 20 000.

NOTE 2 — The number of samples for acceptance tests shall be as agreed upon between the purchaser and the manufacturer However the recommended plan of sampling is given in Appendix A.

6.0.6 *Routine Tests* — The following shall constitute routine tests:

a) Visual examination (*see* **6.1**),

b) Performance test (*see* **6.2**), and

c) Flash test (*see* **6.3**).

6.1 Visual Examination — All horn rings shall be examined for finish, workmanship and electrical contact.

6.2 Performance Test — The operating force for the horn ring shall be between 15 and 20 N. The switch action shall be positive when actuated at any point on the ring.

6.3 Flash Test — The horn ring shall be subjected to a flash test with an ac voltage of 500 V rms at a convenient frequency between 40 and 60 Hz for a period of 5 seconds between the insulated terminal and the body The contacts shall satisfactorily withstand this test without arcing or puncture.

6.4 Vibration Test — The horn ring mounted on a suitable support shall withstand vibration in simple harmonic motion, at the rate of 10-55-10 Hz continuously varying in a period of one minute and with a total lift of 1·5 mm, for one hour in each of the three major axes of the assembly.

6.5 Endurance Test — The test piece shall be suitably mounted and operated at two diametrically opposite points of the ring, alternately, for 100 000 times without failure, with electrical load of 120 percent of the rated current through the horn switch contacts. The sequence of operation shall be one second 'ON' followed by 3 second 'OFF'. The resistance in the system shall be 0·05 ohm for rated voltage of 6 V, 0·10 ohm for rated voltage of 12 V and 0 20 ohm for rated voltage of 24 V, the resistance at terminals and contacts being included. The horn ring after being subjected to this test shall be allowed to come down to room temperature and tested for contact resistance drop. The contact resistance drop at rated current (with normal force of 20 N applied to the ring at any point) shall not exceed 200 mV after the endurance test.

6.6 Test for Water Spray

6.6.0 This is an optional test and shall be agreed between the purchaser and the supplier. The test is generally conducted according to IS:2106 (Part XI)-1965*.

6.6.1 The horn ring shall be fitted in normal working conditions, sprayed with water from above at a rate of 3 times a day (one hour each time) by a sprinkler, and subject it to this test for 10 continuous days At the end of the test there shall be no rust formation, pass the flash test (**6.3**) and there shall be no other abnormalities in operation of the horn ring.

6.7 Damp Heat (Cycling Test) — The objective is to check that satisfactory operation will be maintained during and after exposure to varying conditions of humidity and temperature.

This test shall be conducted according to IS: 2106 (Part II)-1962†. The number of conditioning cycles shall be 7.

At the end of the conditioning, the horn ring shall be subjected to flash test.

6.8 Test for Salt Spray

6.8.0 This is an optional test and shall be agreed between the purchaser and the supplier.

6.8.1 The test for salt spray of horn rings shall be conducted as specified in Appendix B

6.9 Voltage Drop Test — The voltage drop with rated current and a force of 20 N applied at any point on the horn ring switch shall not be greater than 100 mV

6.10 Heat (Cycling) Test — The horn ring shall be subjected to three thermal cycles, each consisting of:

a) 6 hours at 0°C, and

b) 18 hours at 70°C.

---

*Environmental tests for electronic and electrical equipment: Part XI Water spray test.

†Environmental tests for electronic and electrical equipment: Part II Damp heat (cycling) test

The transfer of the horn ring from one ambient to the other shall be immediate. At the end of the test, no deformation or breakage shall be observed and shall pass the test given in **6.9**.

NOTE — Subject to agreement between the purchaser and the supplier, the lower ambient may be specified as −25°C.

APPENDIX A

(*Clause* 6.0.5)

RECOMMENDED PLAN OF SAMPLING

A-0. GENERAL

A-0.1 If statistical quality control techniques have been used for production control such test results and relevant charts may be made available along with the material supplied to enable the purchaser to judge the acceptability or otherwise of a lot. In case such information is not available, the following procedure is recommended for judging conformity of a lot with the requirements of this specification

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment, all the horn rings of the same size and from the same batch of manufacture shall be grouped together to constitute a lot.

A-1.2 The number of horn rings to be selected from a lot shall depend upon the lot size and shall be in accordance with col 1 and 2 of Table 1.

TABLE 1 SIZE OF SAMPLE AND CRITERION FOR CONFORMITY

LOT SIZE N (1)	SAMPLE SIZE n (2)	PERMISSIBLE NUMBER OF DEFECTIVES (3)
Up to 200	15	1
201 ,, 300	20	1
301 ,, 500	30	2
501 ,, 800	40	3
801 ,, 1 300	55	3
1 301 and above	75	4

NOTE — The sampling plan recommended here assures that lots with 3 percent or less defectives would be accepted most of the times and lots with defectives above 20 percent would be rejected most of the times.

A-1.3 These horn rings shall be selected at random. In order to ensure randomness, the following procedure may be adopted:

> Arrange the horn rings in a systematic manner and starting from any horn ring count them as 1, 2 ....., etc, up to *r*, *r* being equal to the integral part of *N*/*n*, *N* being the lot size and *n* the sample size. Every *r*th horn ring shall be included in the sample.

A-2. NUMBER OF TESTS

A-2.1 All the horn rings selected under **A-1.2** shall be subjected to acceptance tests given in **6.0.5**.

A-3. CRITERION FOR CONFORMITY

A-3.1 A lot shall be considered as conforming to this specification, if the number of horn rings out of those tested, failing to satisfy the requirements of any one or more of acceptance tests, does not exceed the corresponding number given in col 3 of Table 1.

APPENDIX B

(*Clause* 6.8.1)

TEST FOR SALT SPRAY

B-1. PROCEDURE

B-1.0 The ability of the horn ring with its cover and terminal compartments in position, to withstand corrosion due to atmospheric conditions, shall be assessed by the following test.

B-1.1 The chamber for this test shall be so constructed that the salt spray is produced in the lower part of the chamber, in the upper part of which the samples to be exposed are suspended.

B-1.2 The spray shall be produced by an atomizer employing compressed air free from all impurities.

B-1.3 The ceiling, the walls and all other ports of the chamber shall be so constructed and the parts under test so arranged that no condensate can drip on the test specimen.

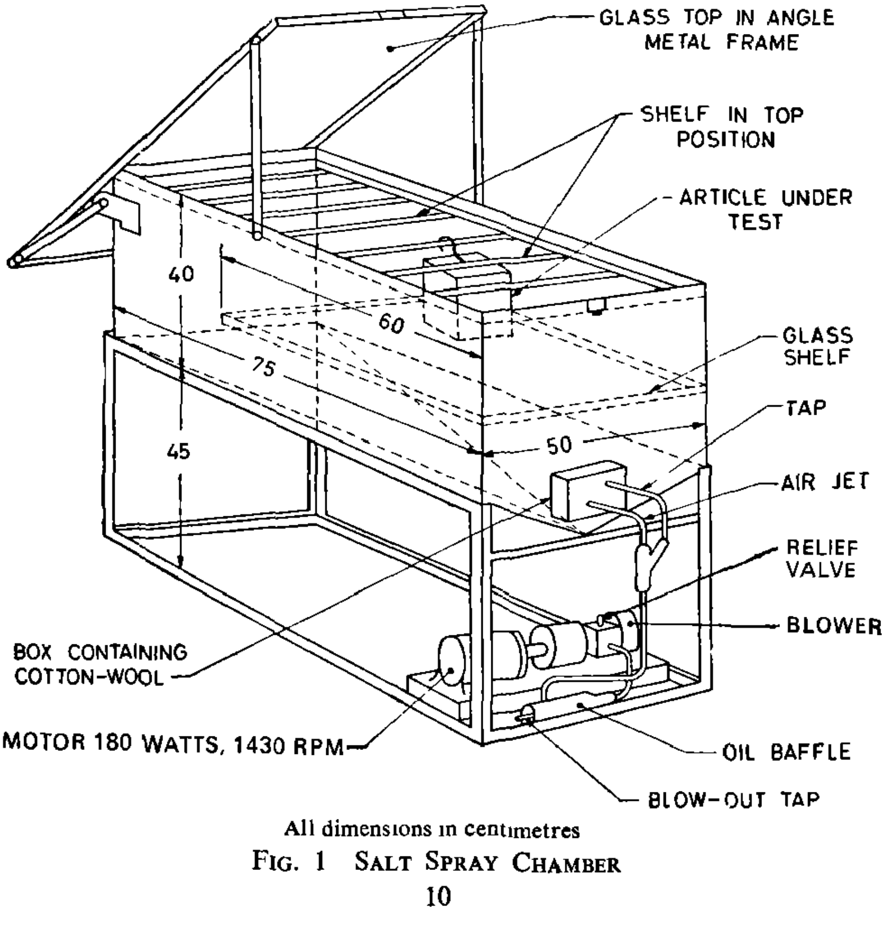
B-1.4 The salt solution shall be a 5 percent solution of sodium chloride in water.

B-1.5 The horn ring shall be sprayed in such a chamber at the standard temperature 27°C, for a cycle of 50 hours consisting of two periods of 24 hours each and one hour draining period.

B-1.6 After removal from the salt spray chamber, the horn ring shall not show any sign of corrosion or electrolytic action which will adversely affect the functioning of any part of the device

B-1.7 *In general, a salt spray chamber described as follows would be* suitable. Details of such chamber and the spraying mechanism are shown in Fig 1 and 2 respectively.

a) The cabinet should approximately be of the dimensions shown, and the cabinet and its internal fittings should be made of monel metal or other suitable material. A shelf is required, which should be capable of being fitted in the upper or lower part of the cabinet;



All dimensions in centimetres

FIG. 1 SALT SPRAY CHAMBER

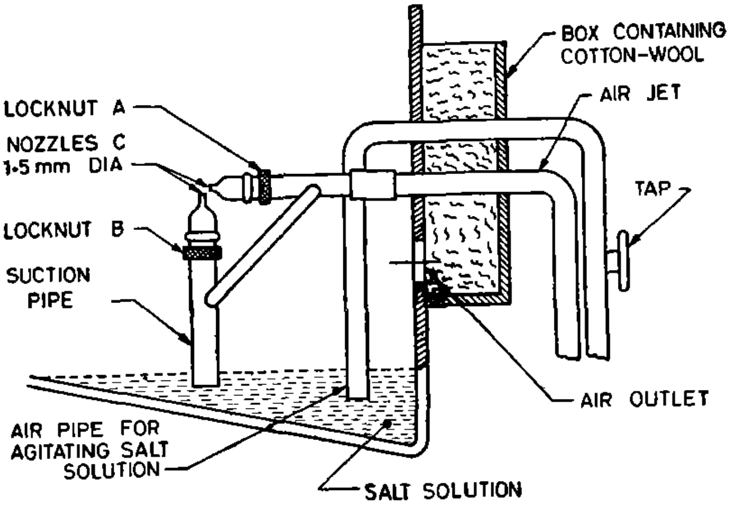


FIG. 2 DETAILS OF SPRAYING ARRANGEMENT

b) The air used for atomizing the salt solution shall be clean. The pressure during the tests shall be between 20k N/m^2 and 35k N/m^2. The pressure may be adjusted by a relief valve or by the pressure outlet of the blower;

c) The nozzle for atomizing the salt solution shall be adjusted for maximum amount of spray. This adjustment may be carried out by unscrewing the bottom locknut *B*, on the lower nozzle *C*, and adjusting this nozzle into position until maximum spray occurs. The diameter of the nozzles shall be 1·5 mm. A tap and second branch in the air line is available for agitating the salt solution as required;

d) The spraying apparatus shall be capable of atomizing not less than 1 450 ml of salt solution per hour. The quantity of solution sprayed per cubic metre capacity of the test chamber shall be approximately 177 ml per minute; and

e) The container filled with cotton-wool acts as a breather and provides an outlet for the air which is constantly being pumped into the chamber, the cotton-wool acting as a filter and preventing salt mist from being discharged into the atmosphere.

INDIAN STANDARDS ON AUTOMOBILE ELECTRICAL EQUIPMENT

IS:

1060-1963	Methods of test for sparking plugs (*revised*)
1063-1963	14-mm sparking plugs (*revised*)
1884-1970	Automobile electric horns (*first revision*)
2077-1962	Automobile electric horn relays
2081-1962	Taper terminal cable connectors for automobile batteries
2325-1963	Ignition coils
2577-1974	Cartridge fuse-links for automobiles
2646-1964	Generators (dynamos) for automobiles
3105-1966	General requirements for automobile lighting and signalling devices
3141-1965	Starters for automobiles
3563-1974	Automobile headlights (replaceable lamp type) (*first revision*)
3628-1966	Sidelights, tail-lights, parking lights, stop lights and direction indicators for automobile use
4050-1967	Methods of tests for horn switches for automobiles
4060-1967	Flashers for direction indicators for automobiles
4061-1967	Headlight switches for automobiles
4062-1967	Foot-operated headlight dip switches for automobiles
4063-1967	Fuse box for automobiles
4086-1967	Methods of test for distributors
4362-1967	Recommendation for lighting of number plates for automobiles
4370-1967	Code of practice for the use of lighting and signalling devices on cars and commercial vehicles
4373-1967	Hydraulically operated stop light switches for automobiles
4815-1968	Self-cancelling direction indicator switches for automobiles
5439-1969	Oil pressure switches for automobiles
5545-1969	Fog lights for automobiles
5546-1970	Distributor caps for automobiles
5562-1970	Fuel gauges for automobiles
5577-1970	Ammeters for automobiles
5977-1971	Regulators for automobile dc generators (dynamos)
7471-1974	Recommendation for polarity of earth connections and marking of electrical equipment for automobiles
7528-1974	Porcelain (moulded) fuse-links for automobiles
7827 (Part I)-1975	Electrical wind screen wipers: Part I Wiper system
7827 (Part II)-1975	Electrical wind screen wipers: Part II Wiper motors
7953-1976	Horn rings for automobiles

PUBLICATIONS OF INDIAN STANDARDS INSTITUTION

INDIAN STANDARDS

Over 8 500 Indian Standards covering various subjects have been issued so far. Of these, the standards belonging to the Electrotechnical Group fall under the following categories

- Acoustics and acoustical measurement
- Automobile electrical equipment
- Batteries
- Cinematographic equipment
- Conductors and cables
- Domestic electrical appliances
- Electric welding equipment
- Electrical installations, codes of practice
- Electrical instruments
- Electron tubes and valves
- *Electronic components*
- Electronic equipments
- Environmental testing procedures
- Fans
- Flameproof electrical equipment
- High voltage techniques
- Illuminating engineering
- Instrument transformers
- Insulating materials
- Insulators and accessories
- Integrating meters
- Lamps and lamp accessories
- Lifts and escalators
- Lightning arresters
- Motors and generators
- Nomenclature and symbols
- Power capacitors
- Power converters
- Relays
- *Rotating machinery*
- Semiconductor devices
- Switchgear and controlgear
- Transformers and reactors
- Winding wires
- Wiring accessories
- Unclassified

OTHER PUBLICATIONS

ISI Bulletin (Published Every Month)	
Single Copy	Rs 4 00
Annual Subscription	Rs 36 00
Standards Monthly Additions	
Single Copy	Re 0 30
Annual Subscription	Rs 3 00
Annual Reports (from 1948-49 Onwards)	Rs 2 00 to 6 00
ISI Handbook, 1975	Rs 30 00

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephone : 27 01 31 (20 lines) **Telegrams : Manaksanstha**

Regional Offices:

			Telephone
Western :	Novelty Chambers, Grant Road	BOMBAY 400007	37 97 29
Eastern :	5 Chowringhee Approach	CALCUTTA 700072	23 08 02
Southern :	C.I T. Campus, Adyar	MADRAS 600020	41 24 42

Branch Offices.

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, *Unity Bldg, Narasimharaja Square*	BANGALORE 560002	2 76 49
Ahimsa Bldg, SCO 82-83, Sector 17C	CHANDIGARH 160017	2 83 20
5-8-56/57 Nampally Station Road	HYDERABAD 500001	4 57 11
117/418 B Sarvodaya Nagar	KANPUR 208005	82 72
B C.I Bldg (3rd Floor), Gandhi Maidan East	PATNA 800004	5 36 55
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27

Printed at Britannia Calendar Mfg Co, Calcutta, India